

Depressive Symptoms among Pregnant Low-Income Adolescents and Implications for Social Workers

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Abstract

Introduction: Pregnant adolescents have worse mental health outcomes than any other age group. Recently researchers have sought to examine the prevalence of depression among adolescents during the postpartum period, but few examine risk factors during pregnancy. This study aims to identify the prevalence and associated risk factors for depression during pregnancy among adolescents.

Methods: We used cross-sectional data of 89 pregnant low-income adolescents age 16-19. All participants completed an Edinburgh Postnatal Depression Scale screen as a part of standard care in a WIC program. We performed descriptive and multivariable regression statistical analyses using STATA MP 12.1.

Results: The prevalence of elevated depressive symptoms (depression) was 17% among our sample. Depression was associated with having less than 12 years of education and the number of previous live births (parity). After adjusting for education, pregnant adolescents who had a previous live birth were four times as likely to have depression compared to adolescents who never had a previous birth (odds ratio = 4.07; 95% confidence interval 1.13-14.71).

Conclusion: The findings demonstrate that low-income adolescents the most significant risk factor for experiencing depression is giving birth in the past and before the current pregnancy. This finding is essential for social workers who provide services to adolescent mothers.

Keywords: depression, pregnancy adolescents, education, parity

1. Introduction

Depression during pregnancy remains a significant public health problem and a concern for social work practice with adolescents (Adams & Kocik, 1997). Adolescent depression rates during pregnancy range from 10% to 46% (Barnet, Liu, & DeVoe, 2008; Melville, Gavin, Guo, Fan, & Katon, 2010). The problem of **depression** can affect both mothers and their newborns (Lanzi, Bert, & Jacobs, 2009). Untreated perinatal depression has been associated with low birth weight and preterm delivery, both of which are leading causes of infant mortality and morbidity (Hodgkinson, Colantuoni, Roberts, Berg-Cross, & Belcher, 2010). Adolescents are at higher risk of depression during pregnancy than another age group (Figueiredo, Pacheco, & Costa, 2007; McGuinness, Medrano, & Hodges, 2013; Reid & Meadows-Oliver, 2007). A study focusing on first-time mothers also found more depressive symptoms during the postpartum period among adolescents (Lanzi, Bert, & Jacobs, 2009). Additionally, depression canary by ethnicity and ethnic minorities might experience greater risks.

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A study in California found that Latina adolescent mothers compared the depression rates of Spanish speaking, bilingual, and English speaking participants and found lower depression for English-speaking and bilingual adolescents only (Nadeem, Whaley, & Anthony, 2006). Pregnancy in adolescence is also related with lower levels of educational attainment. Teenage mothers are less likely to graduate from high school and attend college, compared to women who delay pregnancy (Fletcher & Wolfe, 2009; Perper, Peterson, & Manlove, 2010) or who have an abortion or a miscarriage during adolescence (Fletcher & Wolfe, 2009). Another study controlled for socioeconomic status and found that 34% of women who gave birth during adolescence did not obtain a high school diploma or a GED, compared to only 6% of women who did not have a child as adolescents (Perper et al., 2010). The study also revealed that even delaying motherhood to age 18 supported high school completion, as 60% of participants who gave birth between 18 and 20 obtained a high school diploma, compared to 38% of those had a child before the age of 18 (Perper et al., 2010).

Public assistance programs are vital for low-income in need of resources during pregnancy and the postpartum period. Therefore, public assistance programs provide an opportunity to identify women in need of additional perinatal health and mental health support. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program offers a crucial opportunity to screen pregnant women, including teenagers, for depression (Tabb, Choi, Pineros-Leano, Meline, McDonald, Kester, and Huang 2015). In some states, WIC programs are at the forefront of depression screening among pregnant women and thus have information of the health and mental health of their clients. The current study aimed to identify the prevalence and correlates of depressive symptoms among pregnant teenage women in a WIC program in a Midwestern county.

2. Method

2.1 Design and setting

The design of this study is cross-sectional. Data were collected from a public health district depression registry between April 2013 and October 2015. The registry sample came from a public health district with two clinics, one rural and one suburban. The clinics provide an array of services such as supplemental nutrition programming for WIC and lactation counseling to low-income women. In accordance with an Illinois state policy mandate, maternal and child health case managers screen all pregnant and postpartum women for depressive symptoms using the Edinburgh Postnatal Depression Scale (EPDS) during the antenatal and postnatal periods.

2.2 Sample and procedures

All the participants were active and enrolled in the WIC program. Data was extracted from three sources: paper-based charts, electronic medical records, and Cornerstone, the statewide WIC reporting system. All women who completed at least one EPDS mood questionnaire during their prenatal care were eligible for inclusion in the study. All potential participants received letters inviting participation in the database registry at the time of intake and provided written consent to participate in the study.

2.3 Ethical Statement

The Public Health Institute for Research and Excellence review committee and the University of Illinois at Urbana-Champaign Institutional Review Board approved this study.

2.4 Measures

Age: Maternal age in years was verified during the first visit. For this study, we included all participants aged 16-19.

Race: Participants' race was self-reported. Race/ethnicity was classified into two categories (White and non-White).

Income: Participants reported family income and provided pay stubs for verification during the first visit. Participants had to be under the 185% poverty line to qualify for WIC benefits.

Insurance Status: Participants provided insurance information and this was categorized into two categories (none or public=0; and private=1).

Education: Participants reported the number of years of education they had completed. Participants were categorized into two categories (less than 12 years= 0; 12 years and greater=1).

Body Mass Index (BMI): Objective measures of height and weight were used to calculate BMI. This variable was categorized into normal weight, overweight, and obese.

Smoking: All participants were screened for behavioral risk factors using the United States Department of Agriculture risk assessment as a part of clinical care.

Parity: Participants reported the number of previous live births and were grouped into first time mothers (primiparous) and those who were not (multiparous).

Abortion: Participants reported number of previous pregnancy abortions and this was dichotomized (none=0; at least one abortion=1).

2.5 Statistical Analysis:

We used cross-tabulations to describe the sample characteristics. Chi-square tests were performed for the categorical variables to determine whether there were significant differences in the association with depressive symptoms. Fisher's Exact Test was used to test independence among categorical variables. Univariate and multivariate logistic regressions were conducted to test the effects of significant covariates with depressive symptoms. STATA MP 12.1 was used to perform all statistical descriptive and multivariate logistic regression analysis.

3. Results

Table 1 reports the sample's characteristics. In this sample of 89 pregnant adolescents, 16.8% reported high depressive symptoms (a score of 10 or greater). The age range was 16-19, and the average age was 18.17 (s.d., 0.92). There was no statistically significant difference between age and report of depressive symptoms ($t [87] = 0.8249$, $p=0.41$). The majority (58.4%) of the sample self-identified as a Non-White race. The average annual income was \$7,739 (s.d. \$7,813). There was no statistically significant difference between annual income and report of depressive symptoms ($t [87] = -0.0281$, $p=0.97$). Among participants, nearly half (48%) had not completed 12 years of education (high school). The difference in the level of education and the report of depressive symptoms was statistically significant ($\chi^2 [1] = 4.522$, $p=0.03$; Fisher's exact one-sided $p=0.032$). Only 13.4% of the sample reported smoking during pregnancy. The majority, 83% of participants, had not been previously pregnant. Those who had given birth before were significantly more likely to report depressive symptoms ($\chi^2 [1] = 6.89$, $p=0.009$; Fisher's exact one-sided $p=0.017$). Of the remainder, less than half, 7% of the participants reported a previous abortion, but the group was not large enough to make statistically significant observations.

Table 1: Sample Characteristics of Elevated Depressive Symptoms among Adolescents during Pregnancy, MOOD Registry Study, 2013-2015

Variable	Sample Total (n= 89)	No Depression (n=74)	Depression (n= 15)	P value
Age Mean, (s.d)	18.18 (.92)	18.21 (.96)	18 (.93)	.41
Race				.44
White	37 (42)	30 (81)	7 (19)	
Non-White	52 (58)	44 (85)	8 (15)	.44
Income USD Mean, (s.d)	7,739 (7814)	7,728 (7911)	7,791 (7574)	.98
Insurance				
None	18 (21)	15 (83)	3 (17)	.98
Private	17 (20)	14 (82)	3 (18)	.98
Public	51 (59)	43 (84)	8 (16)	.98
Education				
Less than 12 years	43 (48)	32 (74)	11 (26)	.03
12 years or more	46 (52)	42 (91)	4 (9)	.03
Smoker	12 (13)	11 (92)	1 (8)	.39
BMI				
< = 25	55 (63)	45 (81)	10 (18)	.39
25.1-29.9	17 (19)	13 (76)	4 (24)	.39
> = 30	16 (18)	15 (94)	1 (6)	.39
Parity				
None	74 (83)	65 (88)	9 (12)	.009
One or more	15 (17)	9 (6)	6 (4)	.009
Previous Abortion	6 (7)	5 (83)	1 (17)	.990

Table 2 presents the logistic regression analysis for risk of experiencing elevated depressive symptoms (a score greater or equal to 10 on the EPDS). One model shows depression risk unadjusted for education. It shows that pregnant adolescents who completed high school were significantly less likely to have elevated depressive symptoms than those who did not (OR=0.27; 95% CI .08-.95). It also shows that a previous live birth correlates with the nearly five times likelihood of elevated depressive symptoms (OR=4.81; 95% CI 1.38-16.74). In the model adjusted for parity, education is no longer significant but having given birth before remains a significant risk factor. However, adjusting for education shows that pregnant adolescents who had a previous live birth were four times as likely to have depression compared to adolescents who never had a previous birth (OR = 4.07; 95% CI 1.13-14.71).

Table 2. Logistic regression of risk factors for antenatal depression among low-income adolescent women

Variables	Unadjusted	Fully Adjusted
	OR 95% CI	OR 95% CI
High school	0.27* (.08-.95)	.32 (.09-1.15)
Less than High school	Reference	Reference
Parity- Multiparous	4.81* (1.38-16.74)	4.07* (1.13-14.71)
Parity- No previous	Reference	Reference

OR: odds ratio, CI: confidence interval, * $p < 0.05$

4. Discussion

Nearly 17% of pregnant adolescents in our sample met the criteria for elevated depressive symptoms. This finding aligns with various research studies; two studies specifically showed that 1 in 6 pregnant adolescents report depressive symptoms (da Cunha Coelho et al., 2013; Hodgkinson et al., 2010). This prevalence is particularly concerning because the rate could be higher among pregnant adolescents not seeking services. Identifying adolescents who experience depression during pregnancy may be valuable as a pathway to early detection of postpartum depression. Past studies report that postpartum depression rates can be as high as 29% among adolescent women (Birkeland, Thompson, & Phares, 2005). The findings of this study may make it easier to target services. Given that postpartum depression is a risk factor for problems such as impaired mother-infant bonding (Faisal-Cury, Bertazzi Levy, Kontos, Tabb, & Matijasevich, 2019), targeted interventions for postpartum depression have value for infants as well as mothers (Birkeland et al., 2005).

Evidence suggest that targeting bonding impairment among depressed mothers during infancy can have longstanding benefits for mothers and offspring during the toddlerhood (Faisal-Cury et al., 2019). Accordingly, there is a need to examine services for bonding among adolescent mothers with depression and their infants.

In the case of adolescents, treating depression may make the completion of education more likely, given that mental health problems can impair students' ability to perform well in school (Fazel, Hoagwood, Stephan, & Ford, 2014). Schools have responded by screening their students for mental health problems such as depression, and research examining such a program in Seattle, Washington has shown positive results increase in health services utilization to underserved populations (Kuo, Stoep, McCauley, & Kernic, 2009; Vander Stoep et al., 2005). Screening efforts can be most successful when implementing with passive parental permission (Chartier et al., 2008). The approach of passive parental permission might be most appropriate for pregnant adolescents, who in some states are considered adults during the pregnancy only. Our finding showing that pregnant adolescents who have not completed high school have an elevated likelihood of depression suggests universal depression screening for pregnant adolescents in school settings could have a significant benefit; in school systems, unlikely to undertake universal screening might consider such targeted programs.

Further targeting based on our findings might address pregnant adolescents who have given birth in the past, given their elevated risk of depression. This finding is congruent with past studies which find greater parity with increased risks for depression for second-time mothers compared to first-time mothers (Figueiredo & Conde, 2011). Although past studies have documented some of the risk for depression among adolescents (Hodgkinson et al 2010), there remains a lack of research on prior live births as a risk factor for depression among pregnant adolescents. Accordingly, future studies are needed to determine the extent of the problem.

Of course, research such as the current study should prompt effective programs. Social work interventions have attempted to address the mental health problems among pregnant adolescents in settings such as schools (Allen-Meares, Montgomery, & Kim, 2013). Existing literature on successful interventions on social work interventions for reducing adolescent pregnancy risks are limited. For example, a study examining an intervention using school-based cognitive behavioral therapy with pregnant or parenting Mexican American high school students showed improved grades and increased coping skills (Harris & Franklin, 2003). Future interventions might use a volunteer school-based approach to target and decrease depression among pregnant adolescents. A third study of an intervention that focused on adolescents with repeat pregnancies showed that family-centered support interventions were successful in aiding adolescent mothers delay subsequent pregnancy while staying enrolled in or completing school (Solomon & Liefeld, 1998). More research is needed to determine the effectiveness of social work intervention, such as school-based approaches, with pregnant adolescents experiencing depression.

5. Limitations

While this study has various strengths, it also has some limitations. For instance, social support is one factor that we were unable to include in our study. Social support can come from a family member, friend, partner and or another individual(s) (Hodgkinson, et. al., 2010). The lack of social support and high rates of stress increase depression for the pregnant adolescent, which contribute to detrimental parenting practices such as neglect (Lanzi, et. al., 2009). A lack of support increases the risk of depression for pregnant adolescents (Lanzi, et. al., 2009). Another limitation is the lack of data on father involvement. Only 6% of infants born to pregnant adolescent receive support from a father or male figure (Lanzi, et. al., 2009). Father involvement can be demonstrated through different forms:

appraisal, emotional, physical or financial. However, active support and relationship with a pregnant adolescent can impact their psychological adjustment (Coyle, et. al., 2001).

6. Conclusion

This study detected a 17% chance of depression among pregnant adolescents. It also showed that this risk is four times greater, 4.07 %, for those who have not yet finished high school and is quadrupled, at 68% among those who have given birth before. This finding is essential for social workers and educators as well as clinicians who provide services to pregnant adolescents, as it suggests the importance of depression screening and treatment.

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